

4.5 Program Analysis and Evaluation

4.5.1 General Concepts

Analysis and Evaluation helps determine what path to take, if the program stays on the planned path and whether a course correction needs to be taken.

PMs must stay on top of things; know the status and take timely action.

The purpose of analysis and evaluation is to ensure that “things are being done right” and, even more importantly, “the right things are being done”. Analysis can be either prospective, determining what to do, or retrospective, determining the value of what has been done.

Program managers must be continuously aware of the extent to which activities are being carried out efficiently as planned and to what degree they are contributing to the attainment of the mission, goals and objectives of both the organization and the program. Variances indicate the need for problem solving, decision-making and action.

4.5.1.1 Monitoring Program Work Performance

The primary methods for organizing program status tracking are:

- periodic, usually monthly, program process and management reviews,*
- frequent, usually quarterly, status reports from contractors and field activities.*

Tracking is necessary to ensure that actions that have been planned, initiated, and funded are carried out in a timely and cost effective manner. This means that the three variables, cost, schedule and technical (quality) compliance need to be assessed either continuously or at timely intervals. Ensuring that the work is performed on time at the projected cost and in accordance with the technical guidance provided by the program manager requires close coordination between the program manager and the performers. This is done through regular communications with contract awardees, industry, non-profit partners and the Field (Laboratories, Operations Offices and Regional Offices) as well as receiving and reviewing monthly and quarterly status reports and conducting management reviews that focus on the status of implementation. Variations from the plan in any of the three variables, cost, schedule and technical, need to be identified early so that timely corrective action can be taken. Deviations from the planned path, if allowed to continue, become very difficult or impossible to correct. An example of this is a schedule slippage along the critical path. Insufficient time and resources often prohibit the program, project or task from catching up.

The EERE SMS Budget Hut is a primary source of this tracking information on a month-by-month basis. Details of the applicable spreadsheet and reports available in the Budget Hut are provided in the Budget Hut tutorial, Appendix E, and in the specific SMS Information and Instruction sheets for each SMS

step. Quarterly status reports begin to bridge the gap between work progress tracking and results evaluation. The Secretary's Agreement with the President documents DOE and EERE's annual performance commitments after the annual appropriations process is completed. The Agreement identifies the key accomplishments for the fiscal year, in terms of achieving goals or objectives. A quarterly review is conducted for determining whether the progress toward the agreed upon goal or objective is sufficient or whether additional attention and effort will be needed.

4.5.1.2 Program Evaluation

Program analysis and evaluation is a process of gathering information, studying it and using what we have learned to validate or change our broad goals and objectives and/or our means of pursuing them. Periodically, at frequencies depending on the rate of technology evolution, program progress or lack thereof, or when trends or events indicate, the program manager should step back and conduct analysis and evaluation to ensure that the accomplishment of planned activities remains relevant and is on track to achieve the long and mid-term goals, objectives and milestones established in the strategic and multi-year plans. Evaluation should focus on the degree to which the program is doing quality research, is effectively achieving its objectives and the results are relevant. Results of analysis and evaluation should also feed forward to identify possible new courses of action (see the planning stage) and to determine if better opportunities have emerged. Finally, analysis and evaluation should focus more broadly on the goals and objectives themselves to ensure our ends as well as our means are correct.

Quarterly Status Reports are useful for tracking goals/objectives contained in the Annual Performance Plan.

Program results should be assessed and evaluated to determine if broader goals and objectives are being achieved.

4.5.1.2.1 Elements of Program Evaluation

Program Evaluation consists of:

- A range of processes for evaluating programs and their parts conducted by individuals or groups who are technically competent in related scientific and technology fields;
- The use of objective and established procedures and criteria;
- Either a prospective or retrospective view, or both, depending on the purpose of the review, i.e., whether the program is doing things right or doing the right things;

and

- As appropriate, an assessment to help establish program priorities and guide the direction of future work.

4.5.1.2.2 Peer Review

Peer review is one method frequently used for evaluating research performance. It provides an outside perspective and yields input and insights by experts in related fields who are not involved in the program. Peer review in DOE is discussed in Appendices D-2 and D-3.

NAS, NRC and others have established standards for evaluating Federal research programs.

4.5.1.2.3 Standards for Program Evaluation

The Government Performance and Results Act (GPRA), National Academy of Science (NAS) and National Research Council (NRC), among others, have established standards that state that applied research and basic research should be described in strategic and performance plans, should be evaluated meaningfully on a regular basis and the results included in performance reports. Additionally, the standards require that program evaluations:

- use expert review,
- follow clear, explicit guidance with regard to structuring and employing expert review processes,
- for basic research programs, assess the quality of research, the relevance of that research to the mission and the program's leadership of the research, and
- for applied research programs, assess reaching practical, documented milestones that can be achieved by particular times and meet descriptions of intended final outcomes and their significance.

Peer review can be used to obtain greater independence and objectivity.

The GPRA also requires that Government organizations (including programs) set output and outcome goals and objectives and measure and report progress toward their attainment.

4.5.1.2.4 Key Questions for Program Managers

Key questions the program manager should ask, therefore, are:

- What is the program trying to do?
- Is it useful and worth the cost?

Program managers and EERE management need to work together to make reviews align and complement each other.

- How will the overall effectiveness and efficiency be determined?
- Are the measured and reported results accurate? How is the program actually doing?

4.5.1.2.5 Complementary Reviews in EERE

EERE management and the program manager should be striving together to achieve a program of balanced and credible reviews that ensure:

- Validation and verification of progress toward program and EERE goals,
- Compliance with laws and regulations requiring a variety of performance information,
- Consistency and comparability of evaluations across EERE programs,
- Accountability and communication of the value of the program to others,
- Critical data for program improvement, and
- Awareness of how well the program is working and the causes of both intended and unintended outcomes.

Program Evaluation has many dimensions.

Program managers should be asking a series of questions.

4.5.1.2.6 Program Evaluation Considerations

As stated earlier, program evaluation comes in many shapes and sizes for a variety of purposes. When contemplating program evaluation, the program manager needs to consider the following:

- What kind of activity is being reviewed? Is it research, development, systems evaluation, facilitation of technology deployment or policy formulation?
- What is the purpose of the review? Is it to establish priorities? Is it to fund all or part of new work, to continue all or part of a program or to assess performance?
- What are the evaluation factors? Are they product performance, and quality of work, relevance of work, resource management, and/or leadership?

The Sector Planning Analyst can act as an interface and functional expert.

- Who are the reviewers? Are they DOE employees, performer management, outside experts, either ad hoc convened by the performer or DOE, or a standing group assigned by the provider or DOE?
- What is the source of the procedures and evaluation factors? Is it an established and published source or is it an ad hoc issuance by DOE, an external body or institution or the performer?

4.5.1.2.7 Liaison Between the Program and EERE Management

Ideally, analysis and evaluation should be conducted as a teaming effort between the program, technology sector and EERE. Each has a different breadth and depth of mission responsibilities. Communications should be established and maintained so that the program and the organization can work in concert, with shared purpose to ensure their efforts align with and complement each other's to avoid costly duplications or gaps. To that end, EERE has established Sector Planning Analysts to help the programs within each sector plan and conduct their analysis and evaluation efforts and align them with EERE's. The Sector Planning Analyst serves as an interface and functional expert in the area of analysis and evaluation.

EERE's analysis and evaluation program is structured as shown in Figure 4.5.1 on page 4-130.

Additional Information:

More detailed information on processes and best practices is contained in the Appendices to this guide and in the references listed below. Each of these represent useful sources of "how to" information and should be helpful in getting started.

Specific PM duties are spelled out in the EERE SMS Information and Instruction Sheets.

Appendices:

- Appendix D-1 Best Practice-Program Progress Review Process,
- Appendix D-2 Paper-"Peer Review at the Department of Energy", and

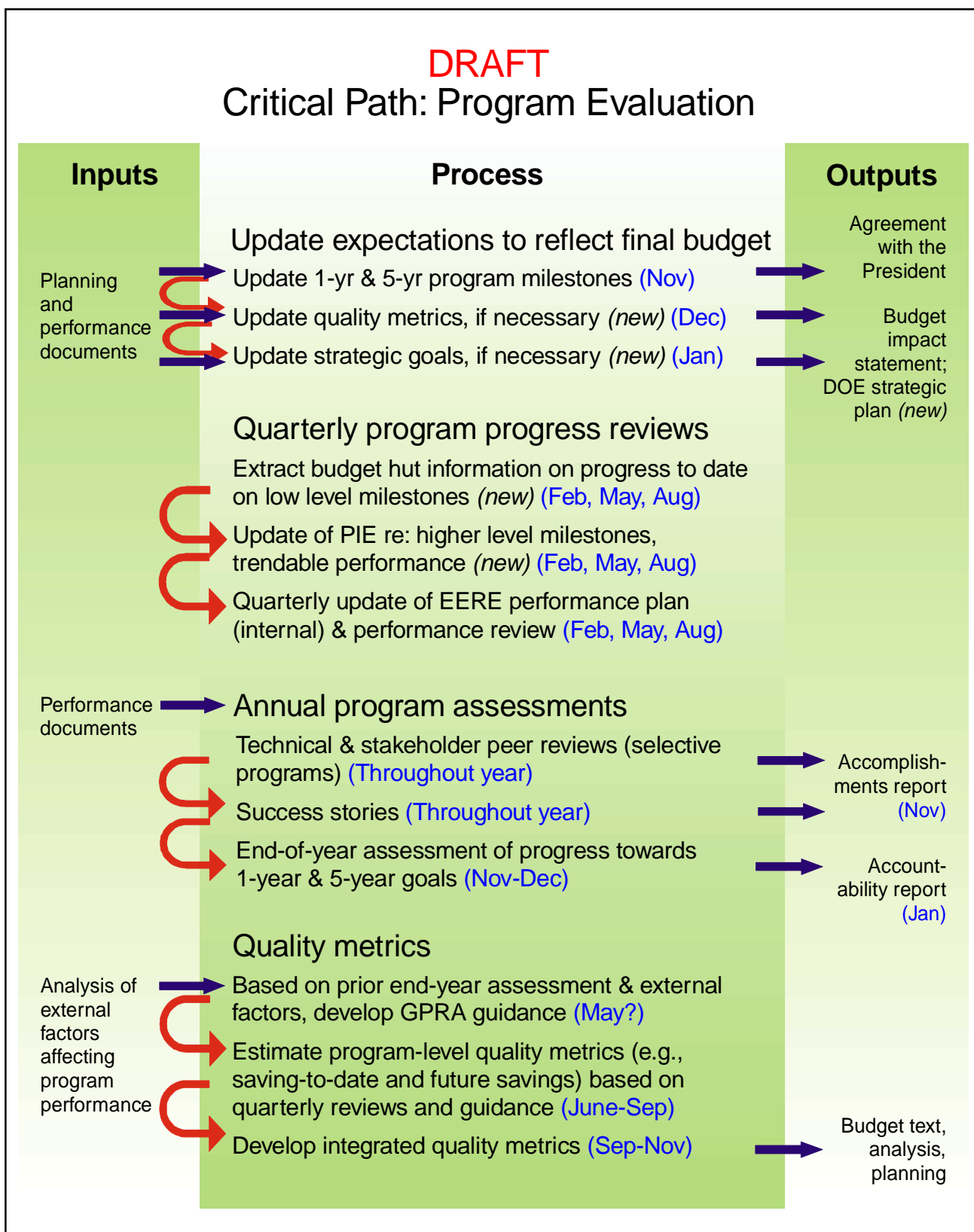


Figure 4.5.1

Performance measurement data will include:

- *Performance measures in the DOE Annual Performance Plan*
- *The Secretary's Performance Agreement with the President*
- *Performance measures in the Budget*
- *Performance data related to EERE's financial operations, human resources, and customers*
- *EERE Strategic Plan*
- *DOE Strategic Plan*

- Appendix D-3 Suggested Framework for Merit Review

References:

- <http://www.cfo.doe.gov/stratmgt/>

4.5.2 EERE SMS • Program Analysis and Evaluation Stages

Program analysis and evaluation, as defined for the SMS, include tracking, reporting, and analyzing performance measurement data, conducting in-depth analyses (evaluations) of EERE programs, and providing results of the analyses and evaluations for use in planning.

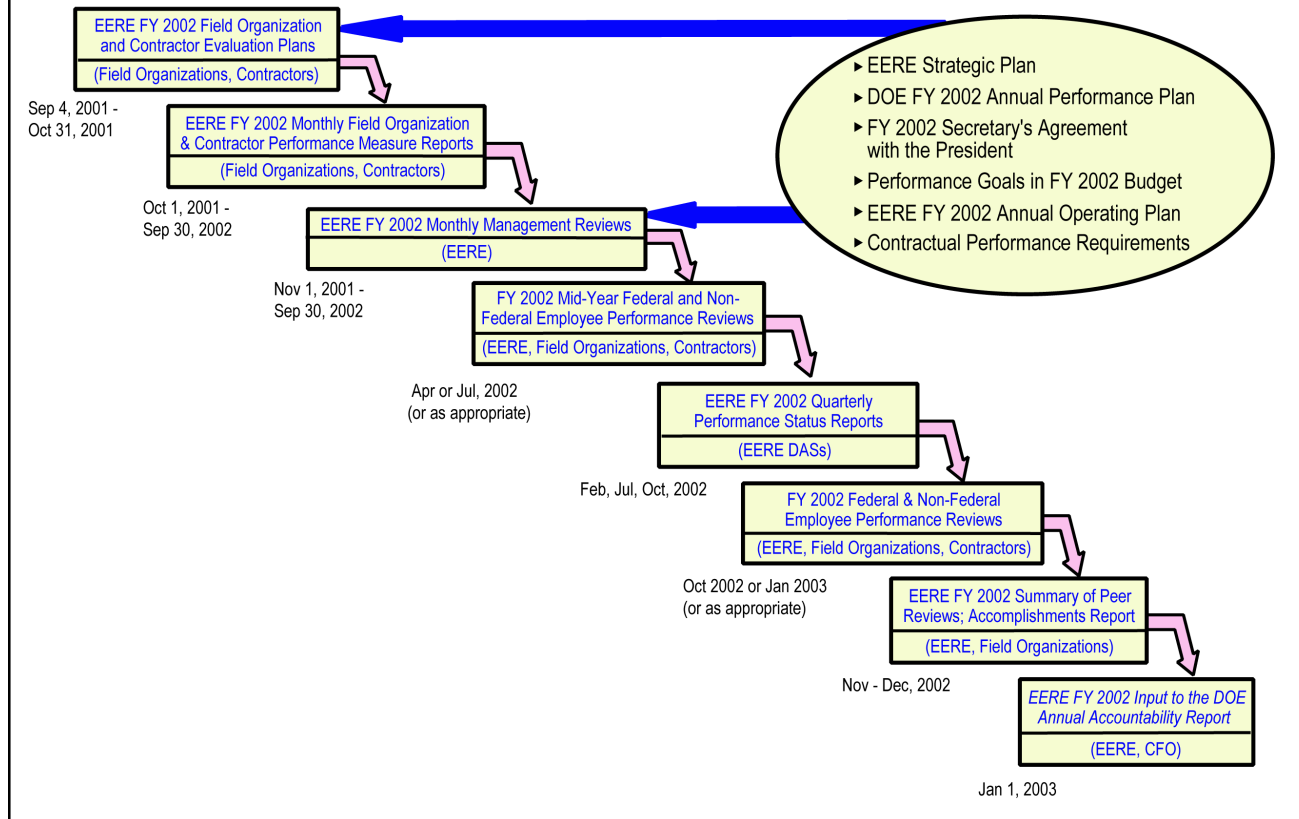
Programs and areas of EERE's management and operations will be selected for in-depth evaluations based on the analysis of performance measurement data and for other reasons. In-depth evaluations will examine why performance is below expected levels and suggest changes that may lead to improvements.

An EERE-wide analysis will be conducted that provides portfolio information for use in planning. This will draw upon the performance information cited above and on performance information gathered through EERE's annual GPRA Data Call.

Ultimately, the development and use of performance information allow each and every Federal and non-Federal employee to see where their work fits in accomplishing EERE's goals, and provides a path of accountability between EERE's long-term vision and the daily activities of these individuals.

Each of the steps shown below are described in detail in the EERE Information and Instruction Sheets that follow.

FY 2001 EERE Program Analysis & Evaluation Stages



Note: Given the rapid pace of change, this Guide will be maintained as a "living document." The Guide contains current fiscal year dates and time frames related to actions over several program management cycles. To ensure that the guidance is as specific as possible, as the schedule of events for each upcoming fiscal year is solidified, the pertinent sections will be updated and distributed to all Guide holders.

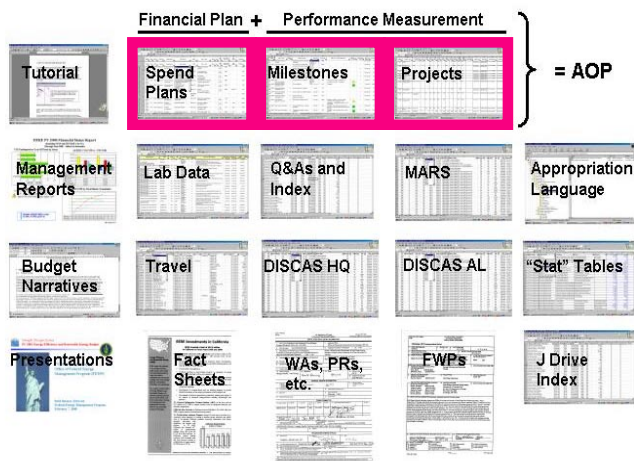
SMS Information And Instruction Sheet

SMS REQUIREMENT
FIELD ORGANIZATION AND CONTRACTOR EVALUATION PLANS
Evaluation Plans define the bases for evaluating Field organization and contractor performance for the current fiscal year. Performance objectives should be consistent with the commitments made in the Department's FY 2002 Annual Performance Plan and the FY 2002 Secretary's Agreement with the President. For FY 2002, Evaluation Plans should be in place by November 1, 2001. Field organizations and contractor organizations are responsible for preparing these plans.
Field Organizations, Contractors

PROGRAM MANAGEMENT ACTIONS:

The evaluation plans should consider the timing, depth, evaluation criteria, organizational interfaces, stakeholder involvement and other factors. To be most effective, the evaluation plan should be developed using teaming and collaborative approaches to achieve consensus on what needs to be evaluated, when, by whom, and against what standards. The plan should be approved by the PM DAS and distributed to all concerned parties by November 1, 2001. Field and Contractor Evaluations should be consistent with the Annual Operating Plan, the Program Guidance Letter, Contract Statement of Work and the required deliverables.

What's in the "J" Drive Budget Hut?



BUDGET HUT INSTRUCTIONS:

USES: The Annual Operating Plan, consisting of the project and milestones spread sheets and the spend plan should be the basis for identifying criteria for determining through analysis and evaluation whether "things are being done right". The EERE and DOE strategic plans and the programs technology R & D Roadmap should serve as the basis for determining through retrospective merit-peer review if "the right things are being done".

References: Appendices D1 and D2 contain information and examples relative to evaluation plans.

ANALYSIS AND EVALUATION	FIELD ORGANIZATION AND CONTRACTOR EVALUATION PLANS
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SMS Information And Instruction Sheet

SMS REQUIREMENT

MONTHLY FIELD ORGANIZATION AND CONTRACTOR PERFORMANCE REPORTS

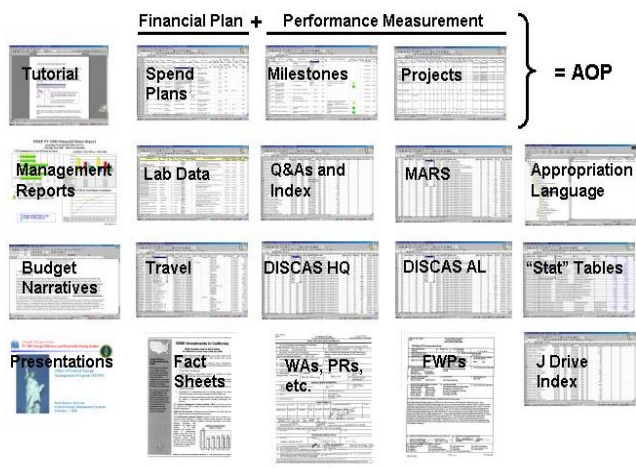
Each month, the Field organizations and contractor organizations submit performance reports that cover the previous month's performance. The content of the reports must serve as the basis for the information contained in the monthly management reviews. The respective Deputy Assistant Secretaries coordinate this reporting.

Field Organizations, Contractors

PROGRAM MANAGEMENT ACTIONS:

The program manager should review each monthly report, noting significant variances from the established AOP, evaluation plan criteria and contractual technical, cost and schedule requirements. The program manager should attempt to identify proximate and root causes for the variances and be prepared to present the causes and remedial actions taken or recommended at the next monthly management review.

What's in the "J" Drive Budget Hut?



References: SMS Users Manual
Budget Hut Tutorial

BUDGET HUT INSTRUCTIONS:

USES: The Annual Operating Plan, consisting of the project and milestones spread sheets and the spend plan should be the basis for identifying variances from the expected performance of the Field and Contractors.

ANALYSIS AND EVALUATION

MONTHLY FIELD ORGANIZATION AND CONTRACTOR PERFORMANCE REPORTS

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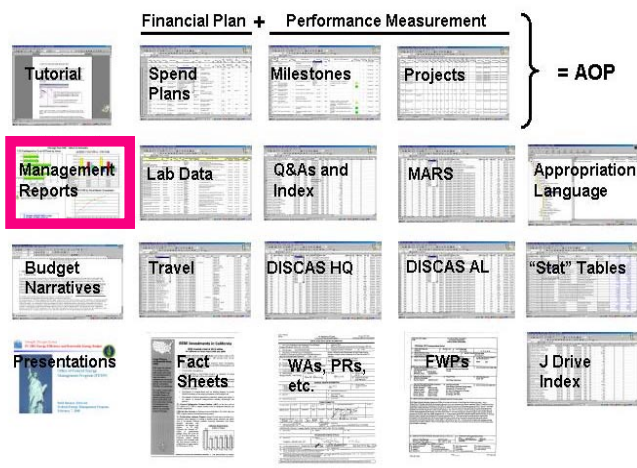
SMS Information And Instruction Sheet

SMS REQUIREMENT
MONTHLY MANAGEMENT REVIEWS
Each month, EE-1 reviews the status of all EERE programs as reflected through the performance measures defined by the Deputy Assistant Secretaries. In addition, key program execution and management issues will be reviewed. These monthly meetings include EE-1, the DASs, Regional Office Directors (for programs involving field integration), and other senior managers.
EERE

PROGRAM MANAGEMENT ACTIONS:

The program manager should review the financial, work performance and procurement data that will be presented at the monthly management reviews and provide the DAS with input on the significant variances (exception reporting), causes and corrective actions.

What's in the "J" Drive Budget Hut?



BUDGET HUT INSTRUCTIONS:

USES: EERE will develop reports on each program based on data in Annual Operating Plan three spreadsheets: Projects, Milestones, and Spend Plan. The PM should review these reports on the "J" drive as well as the underlying data prior to the review to anticipate and resolve problems.

References: SMS Users Manual
Budget Hut Tutorial

ANALYSIS AND EVALUATION	MONTHLY MANAGEMENT REVIEWS
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SMS Information And Instruction Sheet

SMS REQUIREMENT

MID-YEAR FEDERAL AND NON-FEDERAL EMPLOYEE PERFORMANCE REVIEWS

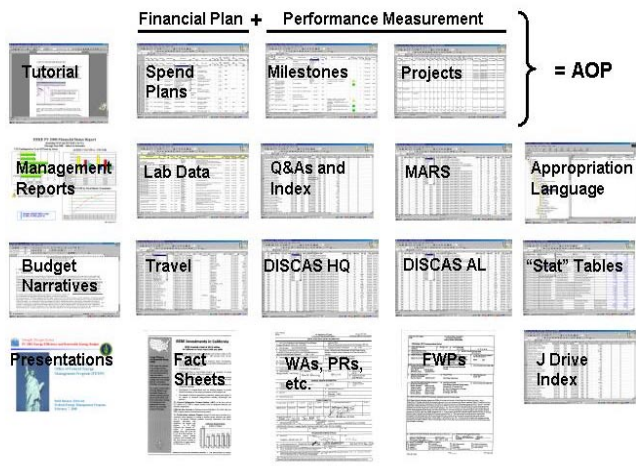
In April or July, 2002 (or other appropriate dates), mid-year performance is reviewed for Federal and non-Federal employees in accordance with applicable rules, personnel policies, and union agreements. Performance should be measurable, accountable, and traceable to performance plans, objectives, and commitments. Reviews are coordinated by the respective organizations.

EERE, Field Organizations, Contractors

PROGRAM MANAGEMENT ACTIONS:

Following the guidance from DOE and PBM above, the program should schedule, conduct and document employee performance reviews in April or July 2002. Prior to the beginning of the performance period, the program manager should have negotiated and put in place individual performance standards which are measurable, accountable, and traceable to achievable organizational and program performance plans, objectives and commitments.

What's in the "J" Drive Budget Hut?



BUDGET HUT INSTRUCTIONS:

Maintenance of Budget Hut data may become part of the program manager's annual performance objectives.

References: DOE O 331.1B Employee Performance Management System

ANALYSIS AND EVALUATION

MID-YEAR FEDERAL AND NON-FEDERAL EMPLOYEE PERFORMANCE REVIEWS

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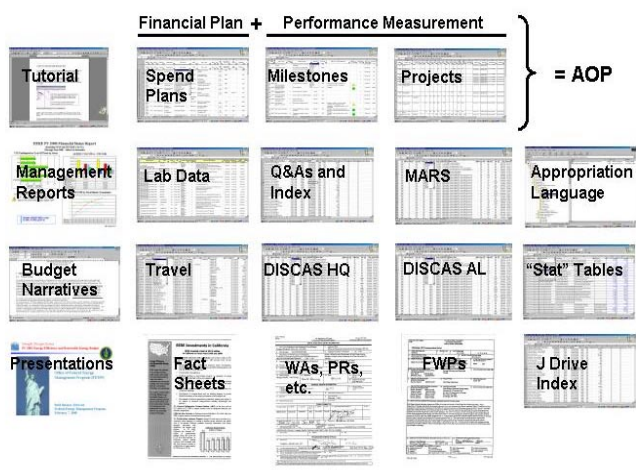
SMS Information And Instruction Sheet

SMS REQUIREMENT
QUARTERLY PERFORMANCE STATUS REPORTS
<p>The Quarterly Performance Status Reports (QPSRs) contain an aggregation of the performance reports and metrics from all EERE organizations. These QPSRs feed EERE's input into the Departmental Performance Tracking System (Solomon). Reports are due in February, July, and October of 2002.</p>
EERE, DASs

PROGRAM MANAGEMENT ACTIONS:

The program manager should be aware and informed of the status of the program and be prepared to respond to calls for input to the Sector and EERE Quarterly Performance Status Reports as applicable. Of particular importance is the program manager's ability to describe how the program's progress toward or achievement of program goals and objectives contribute to the achievement of DOE and EERE goals and objectives contained in the Secretary's Agreement with the President and subsequently reported in the Annual Accountability Report.

What's in the "J" Drive Budget Hut?



BUDGET HUT INSTRUCTIONS:

N/A

References: SMS Users Manual
DOE Solomon System

ANALYSIS AND EVALUATION	QUARTERLY PERFORMANCE STATUS REPORTS
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SMS Information And Instruction Sheet

SMS REQUIREMENT

FEDERAL AND NON-FEDERAL EMPLOYEE PERFORMANCE REVIEWS

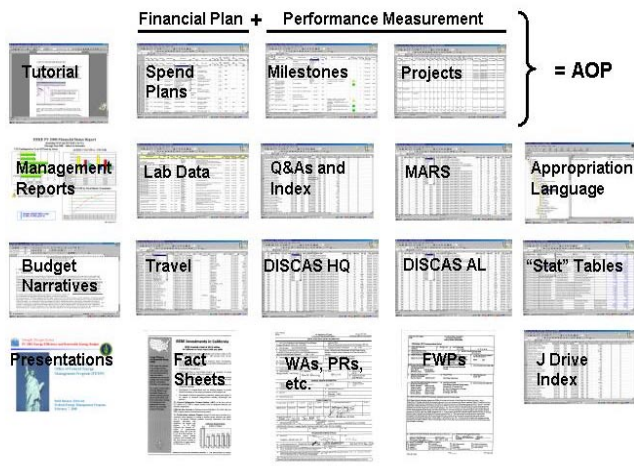
In October 2002 (or other dates as appropriate), both Federal and non-Federal employee performance is reviewed in accordance with applicable rules, personnel policies, and union agreements. Performance should be measurable, accountable, and traceable to performance plans, objectives, and commitments. Reviews are coordinated by the respective organizations.

EERE, Field Organizations, Contractors

PROGRAM MANAGEMENT ACTIONS:

Following the guidance provided by DOE and PBM, the program should schedule, conduct and document employee performance reviews in April or July 2002. Prior to the beginning of the performance period, the program manager should have negotiated and put in place individual performance standards which are measurable, accountable, and traceable to achievable organizational and program performance plans, objectives and commitments.

What's in the "J" Drive Budget Hut?



BUDGET HUT INSTRUCTIONS:

N/A

References: DOE O 331.1B Employee Performance Management System

ANALYSIS AND EVALUATION

FEDERAL AND NON-FEDERAL EMPLOYEE PERFORMANCE REVIEWS

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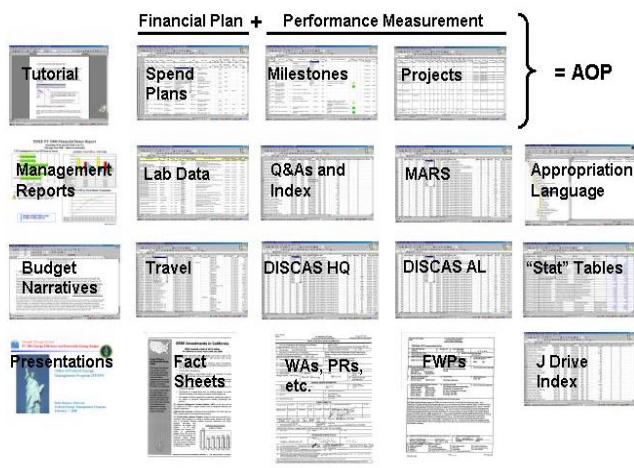
SMS Information And Instruction Sheet

SMS REQUIREMENT
SUMMARY OF PEER REVIEWS; ACCOMPLISHMENT REPORT
<p>During November and December 2002, an Accomplishments Report will be developed that summarizes and reports performance and evaluation information for FY 2002. Findings with regard to performance tracking and analysis, findings from program and peer reviews, National Academy of Sciences studies, and case studies and success stories developed across EERE and by EERE partners and critics will be included. This will provide a rich base of performance information to assist with EERE program decisions and serve as an inventory for EERE evaluation. Additionally, guidance will be prepared for systematically collecting cost and benefit information on an ongoing basis, so that accomplishments can be translated into aggregate evaluation data and the cost effectiveness of EERE programs as a whole can be reported, ultimately strengthening EERE's public image.</p>
EERE, Field Organizations

PROGRAM MANAGEMENT ACTIONS:

The program manager should have planned and implemented program merit-peer reviews conducted with a frequency and regularity consistent with maintaining cost, schedule, and technical targets of this guide. The program manager needs to work closely with the Sector Planning Analyst to ensure the program's evaluation plans are consistent with the EERE evaluation program and commensurate with the program's needs. The program manager should report completion and significant results of the monthly and quarterly results under the SMS, including the Field and Contractor Evaluation Plans.

What's in the "J" Drive Budget Hut?



BUDGET HUT INSTRUCTIONS:

N/A

References: Appendices D2 and D3.

ANALYSIS AND EVALUATION	SUMMARY OF PEER REVIEWS; ACCOMPLISHMENT REPORT
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SMS Information And Instruction Sheet

SMS REQUIREMENT

INPUT TO THE DOE ANNUAL ACCOUNTABILITY REPORT

Performance and Results Act of 1993 and the Government Management Reform Act of 1994 require each agency to submit an annual performance report to Congress each March for the previous fiscal year. The Federal Managers' Financial Integrity Act of 1982 requires an annual report to Congress on the adequacy of departmental management control systems. In turn, the Secretary requires DOE Secretarial Officers to provide an assurance memorandum that addresses the adequacy of their management control systems.

The Department's Annual Accountability Report streamlines and integrates these multiple reporting requirements. This report documents the Department's actual performance against the objectives of the Annual Performance Plan and the commitments in the Secretary's Performance Agreement with the President. The report also covers the management controls in place for programs and administrative functions under each Secretarial Officer.

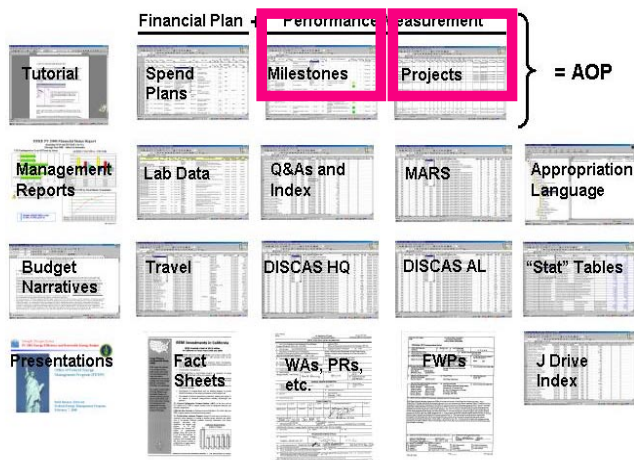
PBM coordinates EERE's end-of-year assessment of progress toward 1-year and multi-year goals and the status of management controls. EERE's input for FY 2002 will be provided by January 4, 2003, to the CFO who issues the final report by March 1, 2003.

EERE, CFO

PROGRAM MANAGEMENT ACTIONS:

The program manager needs to be aware of the planned contributions of the program's objectives and milestones and, accordingly, results for the period to the objectives of the DOE Annual Performance Plan and the Secretary's agreement with the President and respond to calls for input. The Accountability Report contains results achieved on performance commitments in the Secretary's Agreement with the President. It also reports the status of management controls in EERE and identifies their most serious problems.

What's in the "J" Drive Budget Hut?



References: TBD

BUDGET HUT INSTRUCTIONS:

Refer to the milestones and projects spreadsheets to identify significant planned accomplishments for the year.

ANALYSIS AND EVALUATION

INPUT TO THE DOE ANNUAL ACCOUNTABILITY REPORT